1.9.4 Rubric: Technical Assessment

	Needs Improvement	Fair	Good	Excellent
Structural Design	- Team has difficulty assembling robot during demo - Team has difficulty keeping robot together during competition - Parts are used inefficiently	- Base structure has some stability - Modules/extremities are difficult to apply - Modules/extremities difficult to maintain - Robot unstable during motion - Difficulty with environmental variations	- Base and modules stable - Robot has some difficulty with variations - Robot is heavier than required	- Robot is modular and parts are used efficiently - Base and components very stable - Robot handles environmental variations very well - Robot displays a wide range of capabilities
Locomotion	- Robot has difficulty moving at all - Robot motion is jerky - Robot motion is inappropriate for tasks (too fast, for example)	- Robot motion is appropriate - Robot motion is not repeatable - Robot motion is not precise	- Robot motion is very appropriate - Robot motion is repeatable - Robot has minor difficulties with precision	- Robot drive train is extremely solid - All motions are appropriate for the tasks they do - Robot is very controllable - Robot actions are easily repeated
Manipulation	- Robot has one or no manipulators (attachments) - If there is one, it has extreme difficulty completing tasks	- Robot has 2 or more manipulators - Manipulators are not precise - Manipulator success is not repeatable	- Many robot manipulators are capable - Some manipulators are unreliable - Some manipulators are overly complex	- Robot has 1 or more manipulators - Manipulators perform tasks extremely well - Manipulators are robust - Manipulators are simple - Manipulators are reliable - Team can install manipulators with ease
Navigation	- Robot has difficulty navigating the playing field - No sensors used - Robot can perform some navigation using timed turns	- Robot uses one sensor for limited navigation of the field	- Robot uses multiple sensors for navigation - Robot has limited difficulty reaching extended tasks	- Robot uses multiple sensors - Robot uses pre-programmed sequences in concert with sensors - Sensors add to repeatable navigation - Sensors add to precise navigation
Programming	- Programs are disorganized - Programs are inefficient - Results are unpredictable - Sensors are absent or inadequately used - Programs do not accomplish expected tasks	- Programs are somewhat disorganized - Programs are inefficient at completing tasks - Results are somewhat unpredictable - Programs do some of what is expected	- Programs are organized - Programs are efficient - Programs work most of the time - Sensors are used effectively - Programs do most of what they're expected to do	- Programs are logically organized - Programs are very efficient - Programs always work, even for complex tasks - Use of sensors guarantee certain actions in every trial - Programs work in competition the way they do in practice - Loops and conditions used effectively Variables and subroutines used effectively

	Needs Improvement	- Fair	- Good	- Excellent
Overall Design	- Robot consists of base design from a book	- Robot is solid - Robot shows signs of team's design ideas - Sensors are not used to make the robot tolerant of variations	- Robot is solid (base and components) - Robot was designed by the team - Sensors are well-utilized - Manipulators don't reflect a consistent strategy -	- Robot is a complete system - Robot is consistent with team plan and strategy - All components work together - All components look like they belong together - Design is unique - Design demonstrates creative flair